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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PIZIALI, ANDREW T

ART UNIT	PAPER NUMBER
1775	

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/719,141

Applicant(s)

NOVIS ET AL.

Examiner

Andrew T Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 12.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 25-29, 31, 34-35, 43, 46, 52-56 and 61-65 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,595,825 to Guiselin.

Regarding claims 25-29, 31, 34-35, 43, 46, 52-56 and 61-65, Guiselin discloses a transparent substrate carrying a coating stack comprising at least one metallic coating layer comprising silver or a silver alloy, in contact with two non-absorbent transparent dielectric coating layers characterized in that prior to a heat treatment the dielectric coating layers comprise a layer based on a partially but not totally oxidized combination of nickel and chromium (column 2, lines 25-39, column 4, lines 30-54 and Figure 1). Guiselin discloses that NiCr layers may be placed both over and under each silver layer and further discloses that upon depositing the dielectric layers on the NiCr layers, in the presence of oxygen, the NiCr layers become partially oxidized (column 4, lines 30-54).

Regarding claim 29, Guiselin discloses that dielectric films may be tin or tantalum oxide (column 2, lines 49-59 and Figure 1).

3. Claims 25-28, 31-35, 43, 46, 49-57 and 61-66 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,584,902 to Hartig.

Regarding claims 25-28, 31-35, 43, 46, 49-57 and 61-66, Hartig discloses a transparent

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substrate carrying a coating stack comprising one metallic coating layer comprising silver, in contact with two non-absorbent transparent dielectric coating layers, characterized in that prior to heat treatment, each of the dielectric coating layers comprise a layer based on a partially, but not totally oxidized, combination of nickel and chromium (column 9, lines 10-22 and column 10, lines 33-38).

Regarding claim 43 and 61-66, Hartig discloses that the five layer system may be expanded to a seven layer system (column 7, lines 26-46).

Regarding claims 49-51, Hartig discloses that metallic coating layer is deposited in an oxidizing atmosphere with about 5% oxygen (column 10, lines 15-38).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 36-42, 44-45 and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guiselin.

Regarding claims 36-42, 44-45 and 47-48, Guiselin discloses that the thickness of the first dielectric film may be between 27 and 34nm, the thickness of the second and third dielectric films may be between 70 and 80nm and the thickness of the fourth dielectric film may be between 32 and 37nm (column 4, lines 17-29). Guiselin discloses that the thickness of the barrier films may range from 0.5 to 4nm (column 4, lines 40-54). Guiselin discloses that the

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thickness of the metallic coating layers may be between 8 to 15nm (paragraph bridging columns 3 and 4).

The coating thicknesses and compositions impart energy absorption and light transmittance properties within the coated article while affecting the spectral properties. The thickness of each layer is a function of the desired component stack and the preferred reflectivity. The thicknesses and optical characteristics of the coating stack may be adjusted to achieve a broad range of specified emissivity and haze values. The desired attributes may be obtainable by adjusting the compositions and thicknesses of the coating layers. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the thickness of the layers because it is understood by one of ordinary skill in the art that the layer thicknesses determine properties such as transmittance, emissivity, and color and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 37-42 and 45, Guiselin does not mention all the claimed properties, but considering the substantially identical glass article of Hartig, compared to the applicant's claimed article, it appears that the glass article of Hartig possess all the claimed properties.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to

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obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Regarding claims 47-48, Guiselin discloses that the coated glass article may be used in buildings and automobiles (column 1, lines 8-15). Guiselin does not specifically mention using the coated glass article as a laminated glazing or vehicle windshield, but does disclose that the article may be used for the production of panes specially adapted for thermal insulation and/or solar protection (column 1, lines 11-15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the coated glass article disclosed by Guiselin as a laminated glazing or vehicle windshield, because both applications require thermal insulation and/or solar protection.

6. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guiselin as applied to claims 25-29, 31, 34-35, 43, 46, 52-56 and 61-65 above, and further in view of USPN 5,505,989 to Jenkinson.

Guiselin discloses that the dielectric material may be an oxide such as tin oxide or tantalum oxide (column 2, lines 49-59), but does not mention using titanium oxide. Jenkinson discloses that tin oxide, tantalum oxide and titanium oxide are all high refractive index materials that may be used interchangeably (paragraph bridging columns 3 and 4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the dielectric layers of Guiselin from any suitable high refractive index material, such as titanium oxide, as disclosed by Jenkinson, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice.

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7. Claims 30, 32-33, 60 and 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guiselin as applied to claims 25-29, 31, 34-35, 43, 46, 52-56 and 61-65 above, and further in view of USPN 5,952,084 to Anderson et al. (hereinafter referred to as Anderson) or USPN 5,168,003 to Proscia.

Regarding claims 30 and 32-33, 60, 69-71, Guiselin discloses that the dielectric material may be an oxide such as tin oxide or tantalum oxide (column 2, lines 49-59), but does not mention using titanium oxide or silicon nitride. Anderson (column 10, lines 34-40) and Proscia (column 13, lines 31 through column 14, line 15) disclose that tin oxide, tantalum oxide, titanium oxide and silicon nitride are all high refractive index materials that may be used interchangeably (paragraph bridging columns 3 and 4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the dielectric layers of Guiselin from any suitable high refractive index material, as disclosed by Anderson or Proscia, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice.

Regarding claims 60 and 69, Guiselin discloses that there is no obligation to choose the same material for all the dielectric material films (paragraph bridging columns 2 and 3).

8. Claims 36-42, 44-45, 47-48, 58-59 and 67-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartig.

Regarding claims 36-42, 44-45, 47-48, 58-59 and 67-68, Hartig discloses that the thickness of the first dielectric film may be between 35 to 45nm and the thickness of the second dielectric film may be between 45 to 55nm. Hartig discloses that the thickness of the barrier

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films may be greater than about 2nm. Hartig also discloses that the thickness of the metallic coating layer is about 5 to 12nm (column 9, lines 10-22).

The coating thicknesses and compositions impart energy absorption and light transmittance properties within the coated article while affecting the spectral properties. The thickness of each layer is a function of the desired component stack and the preferred reflectivity. The thicknesses and optical characteristics of the coating stack may be adjusted to achieve a broad range of specified emissivity and haze values. The desired attributes may be obtainable by adjusting the compositions and thicknesses of the coating layers. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the thickness of the layers because it is understood by one of ordinary skill in the art that the layer thicknesses determine properties such as transmittance, emissivity, and color and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 37-42, 45, 58-59 and 67-68, Hartig does not mention all the claimed properties, but considering the substantially identical glass article of Hartig, compared to the applicant's claimed article, it appears that the glass article of Hartig possess all the claimed properties.

Regarding claims 58-59 and 67-68, Hartig discloses subjecting the glass article to heat-treatment by way of tempering or bending (column 5, lines 37-40 and column 9, lines 10-24).

Regarding claims 47-48, Hartig does not specifically mention using the coated glass article as a laminated glazing or vehicle windshield, but does disclose that the article exhibits high visible light transmittance and excellent infrared energy reflecting characteristics useful as

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architectural glasses (column 1, lines 9-15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the coated glass article disclosed by Hartig as a laminated glazing or vehicle windshield because high light transmittance and high infrared reflectance as desired in vehicular windshields and laminated glass is widely used in architectural applications to provide added insulation from the outside environment.

9. Claims 30, 60 and 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartig as applied to claims 25-28, 31-35, 43, 46, 49-57 and 61-66 above, and further in view of USPN 5,952,084 to Anderson et al. (hereinafter referred to as Anderson) or USPN 5,168,003 to Proscia.

Regarding claims 30, 60 and 69-71, Hartig discloses that the dielectric material may be silicon nitride (column 9, lines 10-22), but does not mention using titanium, tantalum or tin oxide. Anderson (column 10, lines 34-40) and Proscia (column 13, lines 31 through column 14, line 15) disclose that tin oxide, tantalum oxide, titanium oxide and silicon nitride are all high refractive index materials that may be used interchangeably (paragraph bridging columns 3 and 4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make any of the dielectric layers of Hartig from any suitable high refractive index material, such as titanium, tin or tantalum oxide, as disclosed by Anderson or Proscia, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice.

Regarding claims 69 and 71, Hartig discloses that it is known in the art to convert a five layer system into a seven layer system, because it exhibits higher durability and scratch resistance compared to a five-layer system (column 7, lines 35-46). It would have been obvious

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to one having ordinary skill in the art at the time the invention was made to construct a seven layer system, comprising the five layer system of Hartig with an additional silver layer and an additional nickel/chromium combination layer, because a seven layer system provides higher durability and scratch resistance compared to a five layer system.

Response to Arguments

10. Applicant's arguments filed 5/20/2003 have been fully considered but they are not persuasive.

Regarding Guiselin, the applicant asserts that because the underlying metal bonding film is not exposed to the reactive oxygen-containing atmosphere that the overlying metal barrier film is exposed to during deposition of the subsequent oxide layer, the underlying metal bonding film is not oxidized. The examiner respectfully disagrees. Guiselin discloses "The presence of the barrier and/or bonding films enable the invention stack of thin films as a whole to more effectively resist later thermal treatments which the carrying substrate may have to undergo, i.e., annealing, bending or toughening." (column 4, lines 48-52) The examiner contends that upon thermal treatment the underlying metal bonding film will be partially but not totally oxidized due to the reactive oxidizing-containing atmosphere of the heat treatment taught by Guiselin. In support of examiner's contention the applicant is directed to column 2, lines 38-52, of USPN 6,398,925 to Arbab et al. (hereinafter referred to as Arbab). Arbab discloses that upon heat treatment a metal primer layer (layer sandwiched between an oxide layer and a silver layer) is partially but not totally oxidized upon undergoing a heat treatment.

Regarding Hartig, the applicant asserts that the suggestion that the term "nichrome" can have a broad interpretation of metallic NiCr or partially oxidized NiCr is in direct contradiction

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to the explicit teachings of Hartig that the nichrome layers are to be deposited in an inert atmosphere, which will result in only metallic NiCr layers. The examiner respectfully disagrees. Hartig explicitly teaches that "nichrome" is used to designate a layer which includes some combination of nickel and chromium, at least some of which is in the metallic state, although some may be oxidized (paragraph bridging columns 8 and 9). Hartig also teaches that the nichrome layers may be deposited in an atmosphere of about 95% argon and about 5% oxygen (column 10, lines 15-38).

The applicant asserts that if a metallic nichrome layer is used as a sacrificial barrier layer over a silver layer prior to deposition of an overlying oxide in a reactive oxygen containing atmosphere, it is highly likely that oxidation of the originally metallic nichrome layer will occur. The applicant appears to be arguing that when Hartig discloses that the nichrome layers may be partially oxidized he is only speaking of the embodiments wherein an overlying oxide layer is deposited on the originally metallic nichrome layer. The examiner respectfully disagrees. The invention of Hartig has no overlying oxide layer(s). The overlying layers of Hartig are silicon nitride layers (see entire document).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period


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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (703) 306-0145. The examiner can normally be reached on Monday-Friday (8:00-4:30).

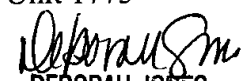
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5665.



atp
July 24, 2003

Andrew T Piziali
Examiner
Art Unit 1775


DEBORAH JONES
SUPERVISORY PATENT EXAMINER